FM For Active Duty2

NEHC 2004

M.M.Jylkka, M.S., CCC-A, FAAA

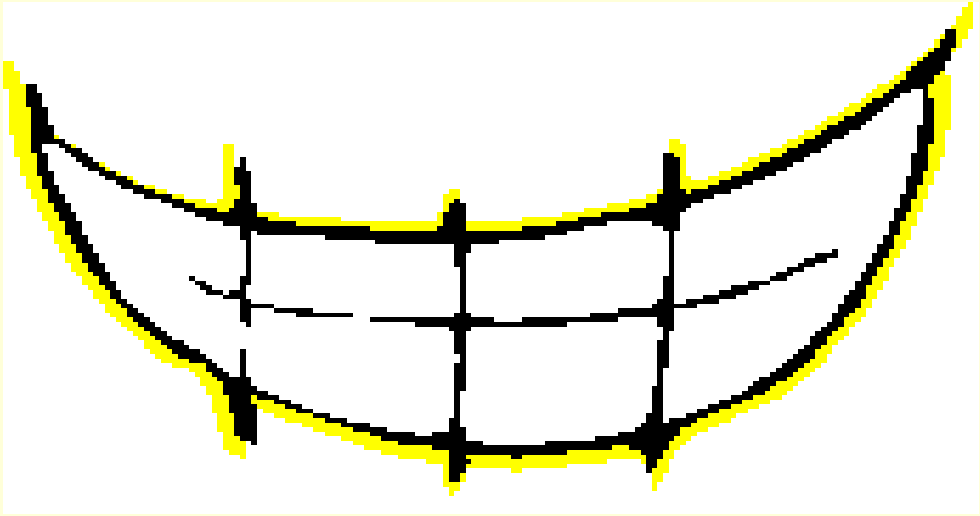
Head, Audiology Division OTOHNS

Disclosure #1

- FM equipment on demo loan program from Phonic Ear
- RADIUM sound field system
- Easy Listener personal FM system

Disclosure #2

- Especially for those in front



My patient already has hearing aids.

Why should I recommend an FM system for my patient?

I thought that the hearing aids were enough.

Reverberation

D.....istanc
e

Noise

(Stuff hearing aids can’t always handle)

- Room acoustics vary.
- Sound bounces of hard surfaces
- May not be a factor with normal hearing
- Echoes arriving later than .2 seconds of the direct signal will make speech recognition more difficult for the normal and especially the hearing impaired listener.
- Environmental controls help: acoustic ceilings, drapes and carpeting.

D.....istance

When you double distance,

sound intensity decreases

by 6dB.

Noise

- **An uncontrollable factor in listening**
- **Inside and outside of rooms**
- **Likely,**

  THE MOST COMMON COMPLAINT

  from hearing aid users when reporting performance of their hearing aids alone.

How much S/N do you need?

- Normal listeners need a +6dB S/N ratio to hear intelligible speech.
- Hearing impaired listeners need

+15db to +20dB

S/N ratio for improved speech understanding.

What is wireless FM?

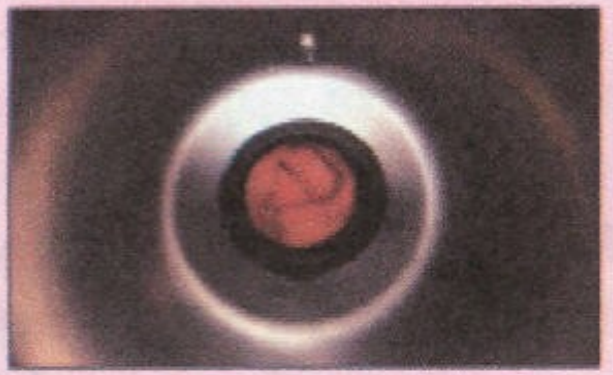
- **Frequency Modulation: 216-217MHz band**
- **A miniature radio broadcast system**
  - **Microphone: delivers voice to the**
  - **FM transmitter (near the signal source)**
  - **FM receiver (near the listener) picking up the voice**
- **Directly overcomes**

D.....istance.

What is wireless FM?

Fm applications -

- **Wireless phones**
- **Walkie-talkies**
- **Baby monitors**
- **Assistive listening systems for hearing**



Ear Extender

*** Forget batteries and wires, hear a crisp new sound**

Who says that the humble, hand-crafted Art of Chindogu can't compete with the mass-produced technological wonders being churned out by those electronic manufacturing giants? The Ear Extender is a sturdily built, water-resistant, battery-free hearing aid that's virtually fool-proof and guaranteed to work whatever the circumstances. No transistors to fiddle with, no cells to charge, and you'll never have to worry about losing these down the drain!

Difficult listening situations… even with a hearing aid

- In a car
- Restaurants
- In a business meeting
- TV
- At a party…like the Australian Embassy

Slides

- Used with permission of Dr. Arthur Boothroyd

- www.arthurboothroyd.com
- aboothroyd@cox.net

Optimizing FM Fittings

Arthur Boothroyd,
June 2003

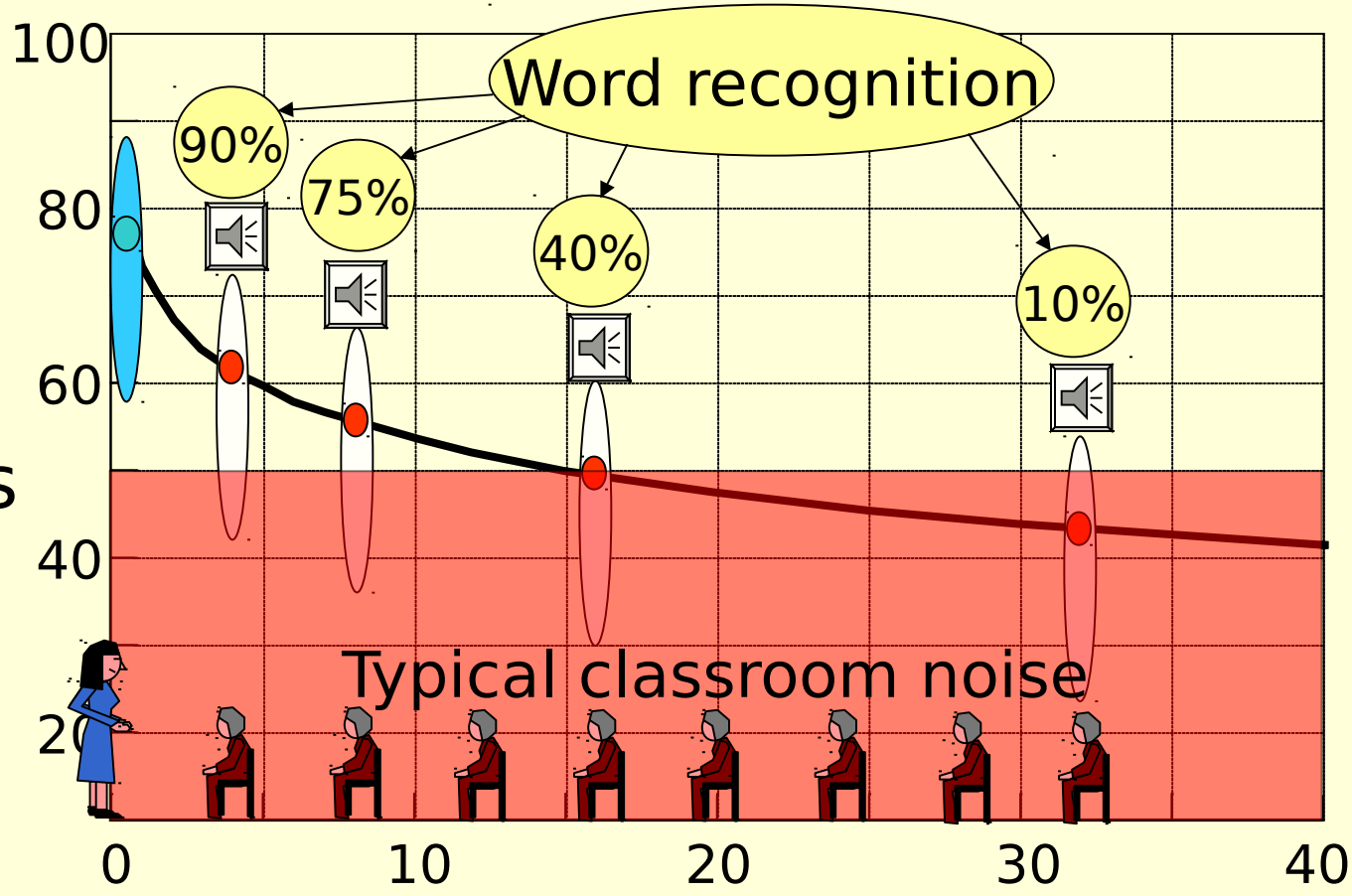
Hearing Aid Accessories for adults: the remote FM microphone

Arthur Boothroyd

Purpose

- To assess the benefits and costs of remote FM microphones as hearing aid accessories for late-deafened and hard-of-hearing adults, in both laboratory tests and field trials.

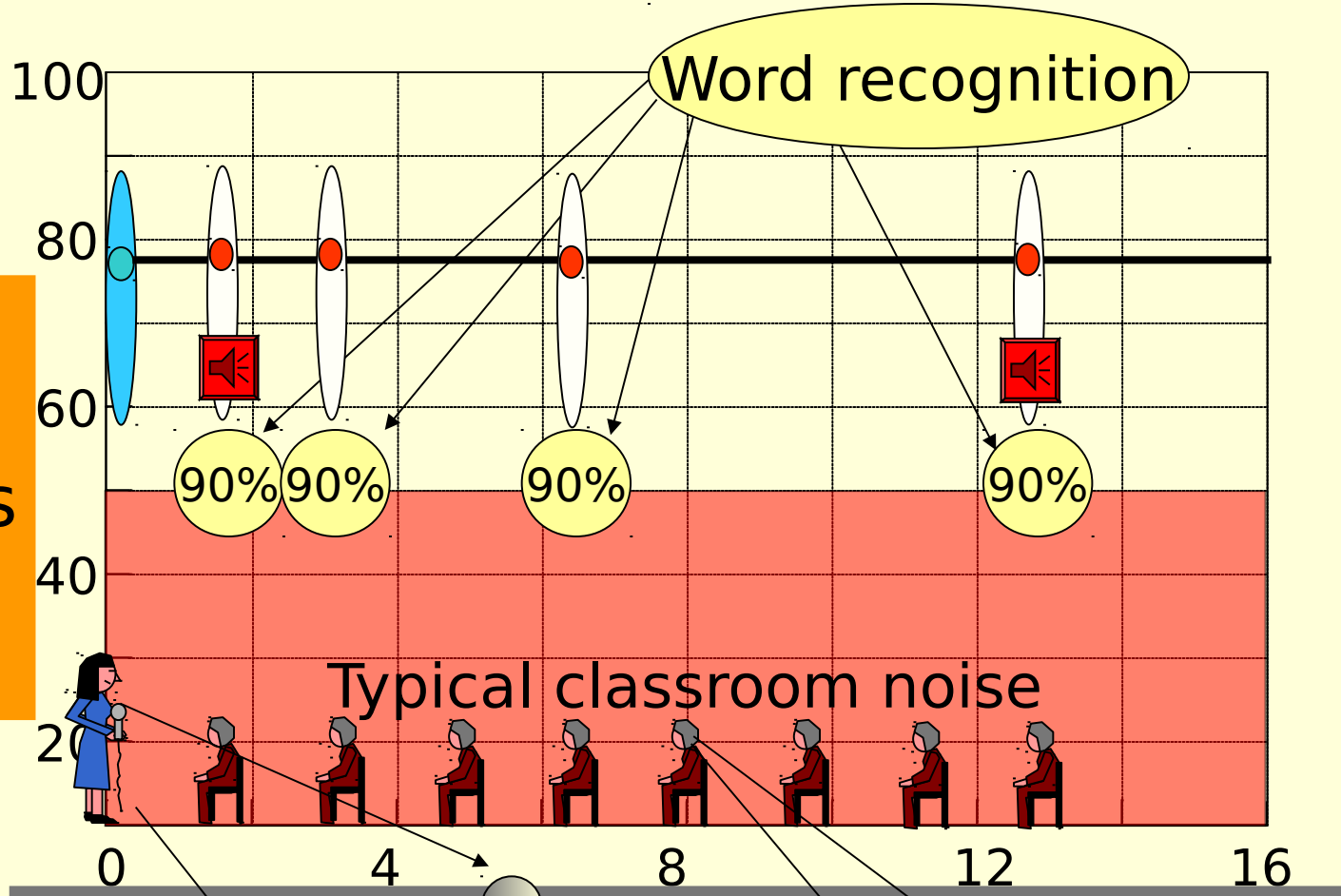
Speech level at listener's ear in dBSPL



Distance from talker's mouth in fe

The noise effect on

Word recognition



Speech level at listener's ear in dBSPL

Benefit of FM wireless microphone

Why should I recommend an FM system for my patient?

- To provide a good acoustical environment for my patient
- Because there are
- **Disability Policy and Laws**

Section 508

Requires that:

- when Federal agencies use electronic and IT
- Federal employees have access that is comparable to use by people without disabilities.

Section 504

- prohibits discriimination against persons with disabilities in any federally funded programs or activities
- prohibits disability-based job discrimination of any kind
- requires that employers make reasonable accommodations for employees with disabilities

Fit For Duty Issues

- Promotion/retention/MEDBOARD

  An FM device may provide access to information in the workplace and thereby enhance job performance, opening opportunities for advancement.

How to Obtain an FM for Active Duty

- Traditionally,
  - The duty station pays for the FM
  - The active duty member personally pays for the FM

Audiology Division, Otol HNS

National Naval Medical Center
8901 Wisconsin Avenue
Bethesda, Maryland 20889-5600
(301) 295-4665 FAX: 295 –6666
Audiologist: M. Jylkka
Margaret M. Jylkka, M.S., CCC-A, FAAA
Head, Audiology Div., OTOHNS
mmjylkka@bethesda.med.navy.mil

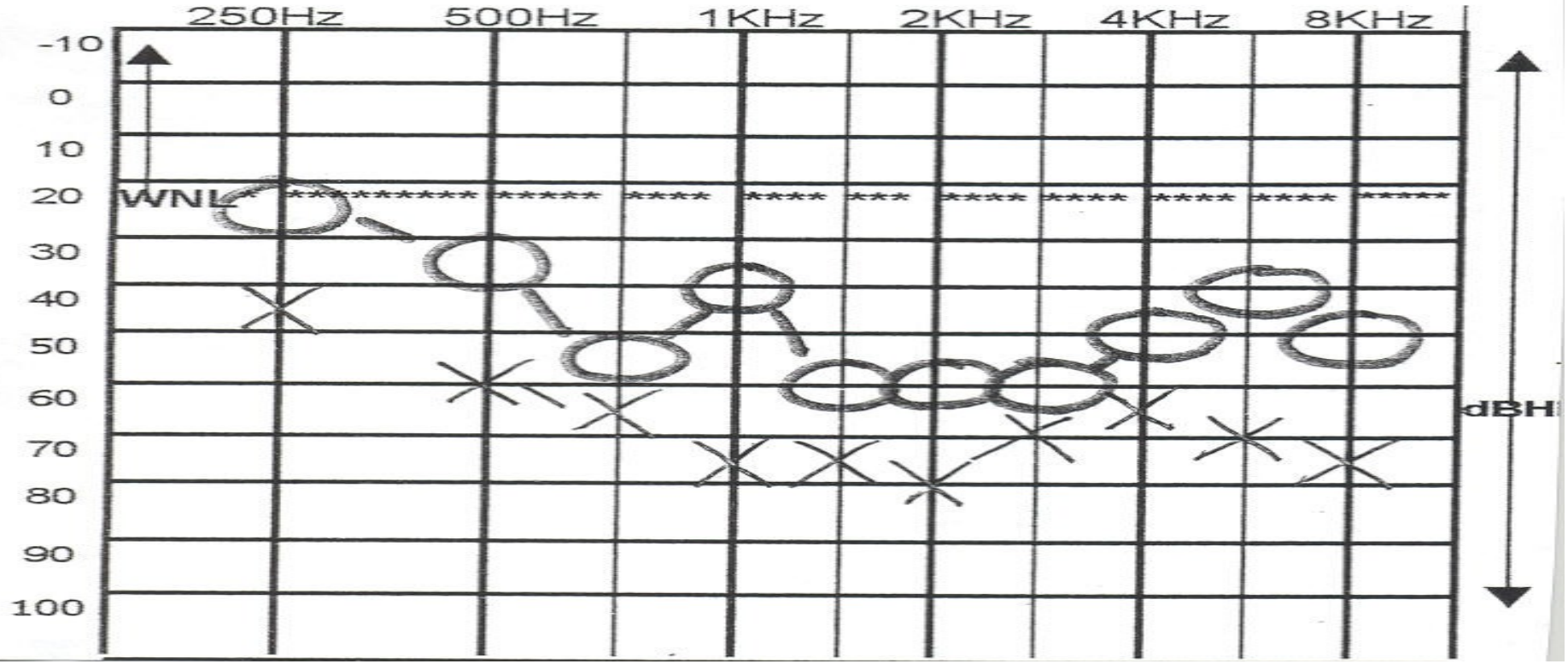
___Male X Female

X N ___MC ___C

DATE: 29 AUGU

° Lit cel C
San Diego

PURE TONE AUDIOGRAM



Audiology Division, Otol HNS
National Naval Medical Center
8901 Wisconsin Avenue
Bethesda, Maryland 20889-5600
(301)295-4665 FAX:-6666
Audiologist: M Jylkka
Margaret M. Jylkka, M.S., CCC-A, FAAA
Head, Audiology Division
mmjylkka@bethesda.med.navy.mil

X Male ___ Female
___ N ___ MC ___ CG
DATE: 10 MAR
post op

PURE TONE AUDIOGRAM

“New” Information on FM for Active Duty

CAP:

Computer/Electronic

Accomodations

Program

CAP

The centrally funded program for DOD employees *: **to eliminate employment barriers for visual, hearing, dexterity and cognitive disabilites.***

Established in 1990 by the Undersecretary of Defense for Personnel & Readiness

- Expanded finding in 2001
- **35,000** accomodations to date
- Serving about 50 Federal agencies

CAP

- Services provided **AT NO COST**

- CAP Accomodation Request Form
  - Submitted via web, email, fax or U.S.mail
  - Signed by individual's supervisor
  - Documentation may include audiogram, audiological notes
  - Equipment shipped directly to individual

CAP Accomodations Solutions

- ALDs-FM, infrared & loop devices
- Hearing or speech amplification devices, especially for telephones
- TTYs and PC-TTYs
- Signaling devices, viual & vibratory
- Computer-Aided-Real-Time (CART) Reporters
- Sign Language/Oral Interpreters

The CAP Customer

- “You are our customer. CAP customers include anybody that is involved with the hiring, placement, accomodation and retention of people with disabilities.
- CAP focuses on people with disabilities in DoD and throughout the Federal government, our primary customer.”

CAP & DON

- NMCI – Navy Marine Corps Intranet
- A seat management system for distribution of hardware and software, including assistive technologies
- NMCI Help Desk at 1-866 THENMCI
- www.nmci-isf.com/userinfo.asp

CAP on the web

www.tricare.osd.mil/cap

(applications may be completed online!)

Multi-media/interactiveCD-ROM may be orders at:

CAP@tma.osd.mil

CAP is Accessible

P Office 703-681-8813 (Voice/TTY)

703-681-9075

PTEC 703-693-5160 (Voice)

703-693-6189 (TTY)

nail cap@tma.osd.mil

rld Wide Web

ww.tricare.osd.mil/cap

What we need to plan for

- **Educating ourselves in the selection**

  and fitting of devices:

  ? BTE

  ?personal FM

  ?toteable system?
- **Counselling re appropriate ALDs**
- **Advocacy**

Neat Transmitters

From PHONAK - **SmartLink SX**

Hand-held remote with

- FM
- Hearing aid remote control
- Bluetooth link for cell phones

From PhonicEar – **LEXIS**

Hand-held remote w/

- 4 directional mics
- One omni-directional
- Can use AAA batteries
- Compatible w/ 9 mfgs

Helpful Stuff

- Auditory Demonstrations II: Challenges to Speech Communication and Music Listening
- A new CD from the NASA Glenn Research Center Acoustical Testing Lab
- Demonstration of the cost of communication interference due to noise and hearing loss
- http://acousticaltest.grc.nasa.gov

(In the Hearing Conservation section)

More Helpful Stuff

- October 2003 issue of The Hearing Journal (Volume 56, No.10)
- “Hearing Aids and Room Acoustics”
- Arthur Boothroyd, Ph.D.

DOD “profound” for children

- 26dB or greater hearing threshold level in one or both ears at 500, 1000, 2000, 3000 or 4000Hz.

FM & “WMD”

- **Wee puns of**
- **Mass**
- **Distraction**

Otherwise known as…

A Mondegreen: a mistake one makes hearing something, mistaking it for something else.

i.e.

“…one naked individual with liver tea and just rice for all.”

- **“Oh what a friend we have in cheeses.”**

- **“This is the face of a reptile’s dysfunction.”**

VA Advice – Kyle Dennis, Ph.D.

- Available - yes
- BUT
- Rec by audiologist
- Ordered through Prosthetics

DOD-TRICARE & FM

National Defense Reauthorization Act of 2002

- Section 702 of NDAA-02, Pub.L.107-107

"provides for coverage of a hearing aid if a family member of an active duty member has a **"profound"** hearing loss as determined under standards prescribed by the Secretary of Defense…"

i.e. **Program For Persons with Disabilities**

VA formula for “profound hearing loss”

- “Any auditory threshold at 500, 1000,1500, 2000,3000, or 4000Hz that is 40dB HL or greater;
- OR, at three of the abovementioned frequencies the threshold level is 26dB or greater;
- OR speech recognition scores are less than 94%.”